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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,817	07/22/2003	F. Daniel Gealy	3403.4US (97-0758.04/US)	6649
24247	7590	09/10/2004	EXAMINER	
TRASK BRITT			PERKINS, PAMELA E	
P.O. BOX 2550			ART UNIT	
SALT LAKE CITY, UT 84110			PAPER NUMBER	
			2822	

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/624,817

Applicant(s)

GEALY ET AL.

Examiner

Pamela E Perkins

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 14 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/22/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This office action is in response to the filing of the application papers on 22 July 2003. Claims 1-20 are pending.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (5,840,600).

Yamazaki et al. disclose a method for oxidizing one of a gate dielectric layer and a cell dielectric layer on a portion of a silicon substrate in an atmosphere where the temperature of the silicon substrate is raised to a temperature in a range of about 600°C to 800°C; providing a gas atmosphere of N<sub>2</sub>O (col. 9, lines 1-14), the gas atmosphere of N<sub>2</sub>O having a pressure of at least about five atmospheres for contacting at least a portion of the silicon substrate (col. 10, lines 21-27); and contacting a portion of the gas atmosphere of N<sub>2</sub>O with a catalytic consisting of one or more metals (col. 16, lines 35-44). Yamazaki et al. further disclose forming an oxide layer on the one of a gate dielectric layer and a cell dielectric layer on the portion of the silicon substrate (abstract). Yamazaki et al. also discloses forming a nitride layer on a portion of the silicon substrate (col. 7, lines 26-37).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Kamiyama (5,508,221).

Yamazaki et al. disclose the subject matter claimed above except oxidizing a tantalum oxide layer on a portion of the silicon substrate.

Kamiyama discloses a method for oxidizing of a portion of a silicon substrate where the temperature of the silicon substrate (1) is raised to a temperature in a range of about 700°C to about 850°C (col. 5, line 64 thru col. 6, line 8); providing a gas atmosphere of N<sub>2</sub>O (col. 5, lines 37-44). Kamiyama further discloses oxidizing a tantalum oxide layer on a portion of the silicon substrate (col. 6, lines 9-22).

Since Yamazaki et al. and Kamiyama are both from the same field of endeavor, a method for oxidizing of a portion of a silicon substrate, the purpose disclosed by Kamiyama would have been recognized in the pertinent art of Yamazaki et al. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify Yamazaki et al. by oxidizing a tantalum oxide layer on a portion of the silicon substrate as taught by Kamiyama to prevent leakage (col. 6, lines 9-22).

Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Okudaira (6,407,419).

Yamazaki et al. disclose the subject matter claimed above except forming a barium strontium titanium oxide layer on a portion of the silicon substrate.

Okudaira discloses a method for oxidizing of a portion of a silicon substrate where the temperature of the silicon substrate (1) is raised to a temperature of about 550°C; providing a gas atmosphere of N<sub>2</sub>O (col. 11, lines 6-14). Okudaira further discloses forming a barium strontium titanium oxide layer (11) on a portion of the silicon substrate (11) (col. 11, lines 26-40).

Since Yamazaki et al. and Okudaira are both from the same field of endeavor, a method for oxidizing of a portion of a silicon substrate, the purpose disclosed by Okudaira would have been recognized in the pertinent art of Yamazaki et al. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify Yamazaki et al. by forming a barium strontium titanium oxide layer on a portion of the silicon substrate as taught by Okudaira to prevent degradation (col. 2, lines 7-9).

Claims 7, 8, 15, 16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Laia, Jr. et al. (5,783,335).

Yamazaki et al. disclose the subject matter claimed above except wherein the catalytic matrix is selected from the group consisting of lead, platinum, iridium, palladium, rhodium, nickel, and silver.

Laia, Jr. et al. disclose a method of coating a substrate wherein a catalytic material is formed over a substrate. Laia, Jr. et al. further disclose the catalytic matrix is selected from the group consisting of lead, platinum, iridium, palladium, rhodium, nickel, and silver (col. 3, line 66 thru col. 4, line 13).

Since Yamazaki et al. and Laia, Jr. et al. are both from the same field of endeavor, a method of coating a substrate, the purpose disclosed by Laia, Jr. et al. would have been recognized in the pertinent art of Yamazaki et al. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify Yamazaki et al. by the catalytic matrix is selected from the group consisting of lead, platinum, iridium, palladium, rhodium, nickel, and silver as taught by Laia, Jr. et al. to control temperature (col. 2, lines 42-61).

### ***Allowable Subject Matter***

Claims 6, 14 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: prior art does not anticipate, teach, or suggest forming a strontium bismuth titanate oxide layer on a portion of said-the silicon substrate.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E Perkins whose telephone number is (571) 272-1840. The examiner can normally be reached on Monday thru Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PEP

  
AMIR ZARABIAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER